CLAIMS

1. An assembly comprising:

a tube made of resilient material, at least a portion of said tube forming a circumferential boundary of a chamber;

first and second end cap assemblies supporting said tube at opposite ends thereof and forming respective end boundaries of said chamber; and

a fixed structure that supports said first and second end cap assemblies, said first and second end cap assemblies being respectively pivotably coupled to said fixed structure, wherein said fixed structure comprises a passageway that is in fluid communication with said chamber.

2. The assembly as recited in claim 1, wherein said fixed structure comprises an air shaft extending the full length of said tube and more, said air shaft comprising an inlet, said passageway and an outlet, said inlet being in fluid communication with said outlet via said passageway, and said chamber being in fluid communication with said passageway via said outlet.

3. The assembly as recited in claim 1, wherein each of said first and second end cap assemblies comprises a respective end cap and a respective bearing fitted into said respective end cap, said end caps forming substantially airtight interfaces with said tube.

4. The assembly as recited in claim 3, wherein each of said end caps is made of hard rubber molded around said respective bearing.

5. The assembly as recited in claim 1, wherein said tube is made of soft closed-cell rubber.

6. The assembly as recited in claim 1, wherein said tube resists radially outward deformation more than it resists radially inward deformation.

7. The assembly as recited in claim 1, wherein said tube comprises a multiplicity of annular transverse cuts extending from an inner peripheral surface of said tube toward, but not reaching, an outer peripheral surface of said tube.

8. The assembly as recited in claim 7, wherein each of said annular transverse cuts has a depth that is constant in a circumferential direction, said depth being the same for each of said annular transverse cuts.

9. The assembly as recited in claim 8, wherein said annular transverse cuts are axially spaced at equal intervals along said tube.

10. The assembly as recited in claim 3, wherein each of said bearings comprises a respective ring of ultra-high-molecular weight plastic material.

11. A roller setup comprising a hard roller and said assembly as recited in claim 1, said hard roller and said tube forming a nip.

12. An assembly comprising:

an air shaft comprising an inlet, a passageway and an outlet, said inlet being in fluid communication with said outlet via said passageway;

a pneumatic roller rotatably mounted to said air shaft and configured to form an annular chamber surrounding a portion of said air shaft, said passageway of said air shaft being in fluid communication with said chamber via said outlet of said air shaft; and

first and second collars fixedly mounted to said shaft at respective positions adjacent opposite ends of said pneumatic roller; said first and second collars restricting axial movement of said pneumatic roller relative to said shaft without restricting rotational movement of said pneumatic roller about said shaft.

13. The assembly as recited in claim 12, wherein said pneumatic roller comprises:

a tube made of resilient material, at least a portion of said tube forming an outer peripheral boundary of said chamber; and

first and second end cap assemblies rotatably mounted to said air shaft at opposite ends of said chamber, said first end cap assembly being fitted inside one end of said tube and said second end cap assembly being fitted inside the other end of said tube.

14. The assembly as recited in claim 13, wherein each of said first and second end cap assemblies comprises a respective end cap and a respective bearing fitted into said respective end cap, said end caps forming substantially airtight interfaces with said tube.

15. The assembly as recited in claim 14, wherein each of said end caps is made of hard rubber molded around said respective bearing.

16. The assembly as recited in claim 12, wherein said tube is made of soft closed-cell rubber.

17. The assembly as recited in claim 12, wherein said tube resists radially outward deformation more than it resists radially inward deformation.

18. The assembly as recited in claim 12, wherein said tube comprises a multiplicity of annular transverse cuts extending from an inner peripheral surface of said tube toward, but not reaching, an outer peripheral surface of said tube.

19. The assembly as recited in claim 18, wherein each of said annular transverse cuts has a depth that is constant in a circumferential direction, said depth being the same for each of said annular transverse cuts.

20. The assembly as recited in claim 19, wherein said annular transverse cuts are axially spaced at equal intervals along said tube.

21. A roller setup comprising a hard roller and said assembly as recited in claim 12, said hard roller and said pneumatic roller forming a nip.

22. A method comprising the following steps:

inserting a slider on a zipper;

attaching said slider-zipper assembly to a web of film;

passing said slider-zipper-film assembly between a pneumatic roller and a hard roller that form a nip, wherein said pneumatic roller deforms radially inward to allow passage of said slider therethrough; and

forming said slider-zipper-film assembly into a bag comprising a receptacle having a mouth with said slider-zipper assembly installed therein.

23. A method comprising the following steps:

inserting a slider on a zipper comprising a pair of flanged zipper strips;

passing said slider-zipper assembly between a pneumatic roller and a hard roller that form a nip, wherein said pneumatic roller deforms radially inward to allow passage of said slider therethrough; and

attaching said slider-zipper assembly to a web of film.

24. A method comprising the following steps:

coupling an object to a web of film; and

passing said coupled object and web between a pneumatic roller and a hard roller that form a nip, wherein said pneumatic roller deforms radially inward to allow passage of said object therethrough.

25. The method as recited in claim 24, wherein said object comprises a slider, and said coupling step comprises the steps of inserting said slider on a zipper and attaching said zipper to said web.

26. The method as recited in claim 25, further comprising the step of forming said slider-zipper-film assembly into a bag comprising a receptacle having a mouth with said zipper installed therein.

27. An assembly comprising:

a tube made of resilient material, at least a portion of said tube forming an outer peripheral boundary of a chamber;

first and second end cap assemblies supporting said tube at opposite ends thereof and forming respective end boundaries of said chamber, said chamber being filled with pressurized fluid;

a hard roller that forms a nip with said tube;

a fixed structure that supports said first and second end cap assemblies and said hard roller, said first and second end cap assemblies and said hard roller being respectively pivotably coupled to said fixed structure, said fixed structure comprising a passageway that is in fluid communication with said chamber; and

a slider-zipper-film assembly that is passed between said hard roller and said tube, wherein said tube is deformed radially inward to allow passage of said slider therethrough.

28. The assembly as recited in claim 27, wherein said fixed structure comprises an air shaft extending the full length of said tube and more, said air shaft comprising an inlet, said passageway and an outlet, said inlet being in fluid communication with said outlet via said passageway, and said chamber being in fluid communication with said passageway via said outlet.

29. The assembly as recited in claim 27, wherein each of said first and second end cap assemblies comprises a respective end cap and a respective bearing fitted into said respective end cap, said end caps forming substantially airtight interfaces with said tube.

30. The assembly as recited in claim 27, wherein said tube is made of soft closed-cell rubber.

31. The assembly as recited in claim 27, wherein said tube resists radially outward deformation more than it resists radially inward deformation.

32. The assembly as recited in claim 27, wherein said tube comprises a multiplicity of annular transverse cuts extending from an inner peripheral surface of said tube toward, but not reaching, an outer peripheral surface of said tube.